Tank GT20

B5211

Service Engineer's Manual

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PREFACE

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Version 1.00

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Operation is subject to the following conditions:

1) This device may not cause harmful interference;

2) This device must accept any interference received including interference that may cause undesired operation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try one or more of the following measures:

– Reorient or relocate the receiving antenna.
– Increase the separation between the equipment and the receiver.
– Plug the equipment into an outlet on a circuit different from that of the receiver.

Consult the dealer on an experienced radio/television technician for help.

Notice for Canada

This apparatus complies with the Class B limits for radio interference as specified in the Canadian Department of Communications Radio Interference Regulations. (Cet appareil est conforme aux norms de Classe B d'interference radio tel que specifie par le Ministere Canadien des Communications dans les reglements d'ineteference radio.)

Notice for Europe (CE Mark)
This product is in conformity with the Council Directive 89/336/EEC, 92/31/EEC (EMC).

CAUTION: Lithium battery included with this board. Do not puncture, mutilate, or dispose of battery in fire. Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by manufacturer. Dispose of used battery according to manufacturer instructions and in accordance with your local regulations.

About this Manual

This manual provides you with instructions on installing your Tank GT20. This Manual is intended for experienced users and integrators with hardware knowledge of personal computers.

This manual consists of the following parts:

Chapter1: Provides an introduction to the GT20 B5211 barebones, packing list, describes the external components, gives a table of key component, and provides block diagrams of the system.

Chapter2: Covers procedures on installing the CPU, memory modules, PCI-E card and hard drives.

Chapter3: Covers removal and replacement procedures for pre-installed components.

Appendix I: BIOS Differences

Appendix II: Cable Connection Tables

Appendix III: Installing SMDC Cards

Appendix IV: FRU Parts Table

SAFETY INFORMATION

Before installing and using the Tank GT20, take note of the following precautions:

- Read all instructions carefully.
- Do not place the unit on an unstable surface, cart, or stand.
- Do not block the slots and opening on the unit, which are provided for ventilation.
- Only use the power source indicated on the marking label. If you are not sure, contact the power company.
- The unit uses a three-wire ground cable, which is equipped with a third pin to ground the unit and prevent electric shock. Do not defeat the purpose of this pin. If you outlet does not support this kind of plug, contact your electrician to replace your obsolete outlet.
- Do not place anything on the power cord. Place the power cord where it will not be in the way of foot traffic.
- Follow all warnings and cautions in this manual and on the unit case.
- Do not push objects in the ventilation slots as they may touch high voltage components and result in shock and damage to the components.
- When replacing parts, ensure that you use parts specified by the manufacturer.
- When service or repairs have been done, perform routine safety checks to verify that the system is operating correctly.
- Avoid using the system near water, in direct sunlight, or near a heating device.
- Cover the unit when not in use.

Chapter 1: Overview

1.1 About the Tank GT20 B5211

Congratulations on your purchase of the TYAN Tank GT20 B5211, a highly-optimized rack-mountable barebone system. The Tank GT20 B5211 is designed to support Intel® Kentsfield/Yorkfield/Conroe/Wolfdale processors, providing a rich feature set and incredible performance. Leveraging advanced technology from Intel, the Tank GT20 B5211 server system is capable of offering scalable 32 and 64-bit computing, high-bandwidth memory design, and a lightning-fast PCI-E bus/PCI-X slot and Tyan IPMI SMDC implementation. The Tank GT20 B5211 not only empowers your company in today's demanding IT environment but also offers a smooth path for future application usage.

TYAN is also proud to deliver the Tank GT20 B5211 in SATAII flavor while supporting up to four hot-swappable SASA HDD, one slim DVD-ROM. The Tank GT20 B5211 uses TYAN's latest tooling-made chassis featuring a robust structure, tool-less and modularized design, and a solid mechanical enclosure. All of this provides the Tank GT20 B5211 the power and flexibility to meet the needs of nearly any server application.

1.2 Product Models

Model	Supported HDD type & quantity	Hot-swappable	Power supply
B5211G25V4H	SATAII (4)	Yes	400W single

1.3 Features

Enclosure
- Industry 19” rack-mountable 1U chassis
- Dimension: D 22.4 x W 17.2 x H1.72 inch (568 x 436 x 43.6mm)

Processors
- Single LGA775 socket
- Support Intel® Kentsfield/Yorkfield /Conroe/Wolfdale processors (lower than 105W)
- 1333/1066/800 FSB supported

Chipset
- Intel Bigby-V MCH
- ICH9R south bridge
- SMSC SCH5027 super I/O chip
- EZ-USB AT2 (CY7C68300C) Ultra ATA controller

Memory
- (4) 240-pin DDR2 DIMM sockets
- Maximum of 8GB DDR2-667/800
- Supports Un-buffered ECC/non-ECC DIMMs

Expansion Slots
- (1) PCI-E x16 slot with PCI-E x8 bus Via M2083-RS (support full profile PCI-E card w/o SMDC) or (1) PCI-X slot via M2061 (option)
- (1) 200 pin vertical SO-DIMM for optional Tyan IPMI SMDC

Back I/O Ports
- Stacked PS/2 mouse & keyboard ports
- Stacked (2) USB 2.0 ports and (RJ45 port for OPMA
- (1) 15-pin VGA port
- (1) 9-pin COM port
- side-by-side RJ45 10/100/1000

Front Panel Features
- I/O
  – (2) USB2.0 ports
- LED indicators
  – Power LED
  – (2) LAN LEDs
  – HDD active LEDs
  –ID LED
  –Warning LED
- Switches
  – Power
  – Reset
  – NMI
  – ID

Integrated Storage Controller
- Support (6) SATA II ports running at 3Gbps
- Single Ultra ATA Channels(from CY7C68300C) for Single ATA devices

Storage
- Support (4) hot-wrapped SATA HDD with RAID 0, 1, 5 and 10 support for Windows only
- Pre-installed (1) slim type DVD-ROM

Networking
- (2) Intel i82573 GbE NICs (1*82573V+1*82573L)

Video
- XGI Z9S
- 32MB DDR2 frame buffer memory

Motherboard
- TYAN Toledo i3200R S5211 system board
- ATX footprint (12” x 9.6”) (305 x244m)

ports

BIOS

- Phoenix® on 8Mbit LPC Flash ROM
- Serial Console Redirect
- USB boot supported
- Supports ACPI
- PnP, DMI2.0, WfM2.0 power management
- S0/S1/S4/S5 states supported

Sever Management

- Auto fan control
- Chassis intrusion header
- Temperature, voltage, and fan monitoring
- Tyan SMDC M3295-2, M3296 IPMI v2.0 compliant Remote sever management kit (option)

System Cooling

- (2) 40*40*28mm heavy-duty fans
- (2) 40*40*56mm heavy-duty fans
- (1) passive CPU heatsink

Power Supply

- 12V, 400W 80+ plus
- Universal 24-pin + 8-pin + 4-pin power connectors

Regulatory

- FCC Class A (Declaration of Conformity)
- CE (Declaration of Conformity)

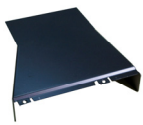
Environment Temperature

- Operating temperature: 5°C ~ 35°C
- Non-operating temperature: -40°C ~ 70°C

1.4 Standard Parts List

This section describes the Tank GT20 B5211 package contents and accessories. Open the box carefully and ensure that all components are present and undamaged. The product should arrive packaged as illustrated below.

1.4.1 Box Contents

Component	Description
	TYAN S5211G2NR-1U Motherboard
	GT20 1U chassis, (4) hot-swap HDD bays
	400W Single Power
	(2) System fans (40mm x 40mm x 56mm)
	(2) System fans (40mm x 40mm x 28mm)
	1 x Air Duct
	1 x slim DVD-ROM drive

1.4.2 Accessories

If any items are missing or appear damaged, contract your retailer or browse to TYAN's website for service：http://www.tyan.com

The Web site also provides information on other TYAN products, plus FAQs, compatibility lists, BIOS settings, and more.

1 x Tyan Motherboard Drive CD

1 x Heatsink

HDD Screws

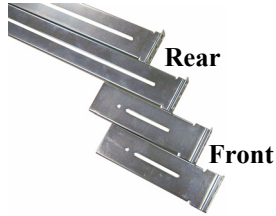
Power Cables
Left to right: Europe, US

Mounting Ears & Screws

Barebone Manual &
Mainboard Manual

Rail Kit

4 x Mounting Bracket

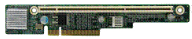


Sliding Brackets
2 x Front L-Bracket
2 x Rear L-Bracket

Screws Kit

2 x Sliding Rails

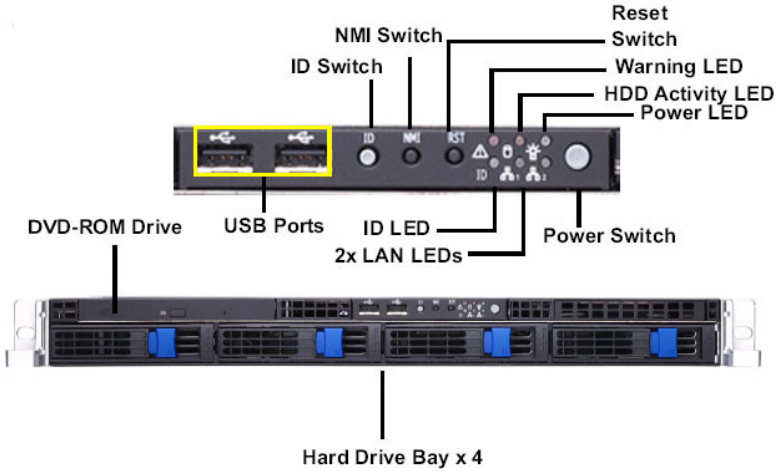
1.5 Optional Parts

Item	Model Number	Picture	Quantity	Description
LCD Module	CLCM-0040		1	LCD Module Kit for GT Series 1U Chassis
SMDC IPMI Card	M3295-2		1	SMDC IPMI M2 Card
	M3296		1	SMDC IPMI M2 Card
M2061 Riser Card	M2061		1	TF-PCI-E to PCI-X 1U Riser Card
Chassis Front Bezel	CFBZ-0070		1	Front Bezel for GT Series 1U Chassis

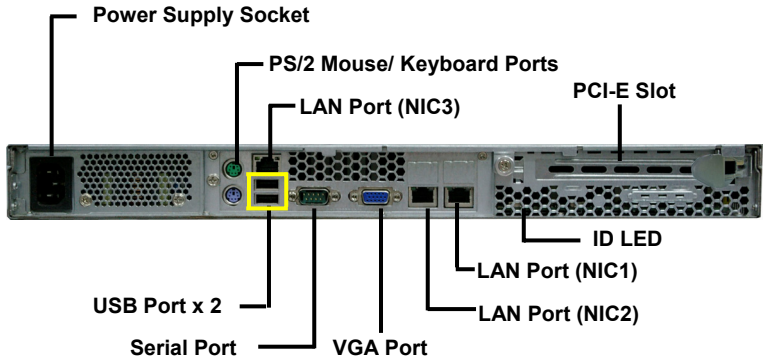
1.6 About the product

The following views show you the product.

1.6.1 System Front View



1.6.2 System Rear View



1.6.3 LED Definitions

Front Panel

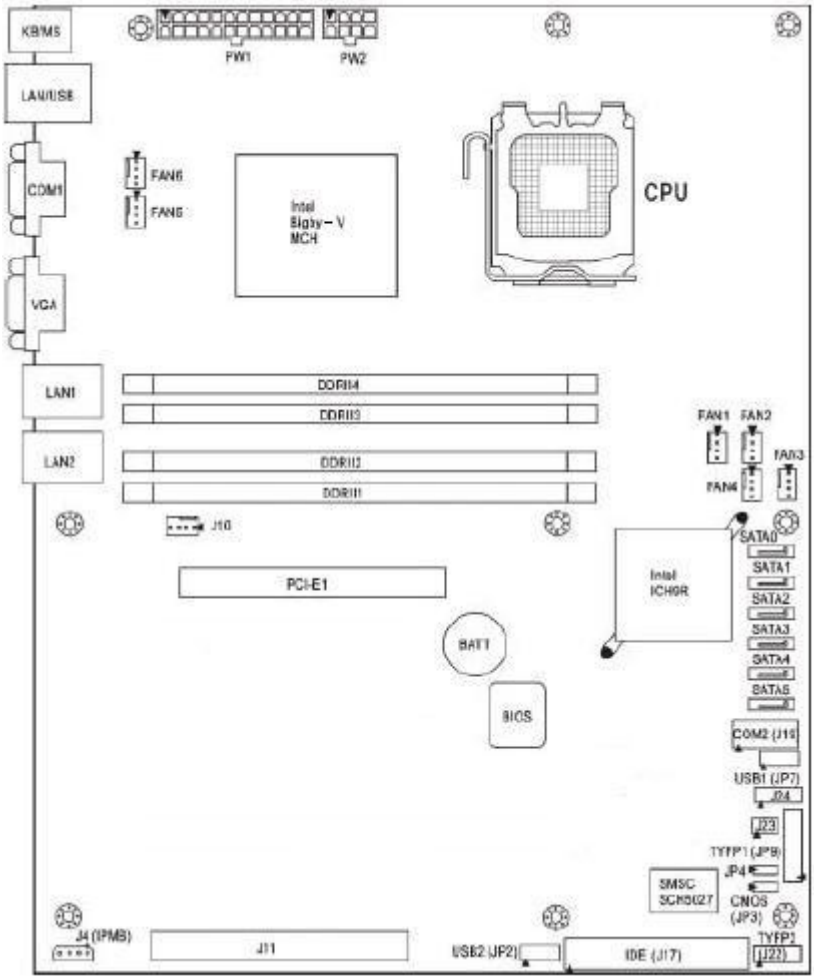
LED	Color	State	Description
Power	Green OFF	OFF OFF	ON Power OFF
HDD Activity	Amber OFF	Blinking OFF	HDD/DVD access activity No disk activity
LAN1/LAN2 Linkage	Green Green OFF	ON Blinking OFF	Linked to LAN Accessing LAN No LAN link
Warning	Red OFF	ON OFF	Fan failure & system intrusion Normal
ID LED	Blue OFF	ON OFF	System is identified System is not identified
Hot Swappable HDD fail LED	Amber OFF	ON OFF	HDD fail No failure found
Hot Swappable HDD Power/Access LED	Green Green OFF	ON Blinking OFF	HDD ready HDD access activity No disk activity

Rear I/O LED

LED	Color	State	Description
RJ45 NIC1 Linkage (Left Side)	Green Green OFF	ON Blinking OFF	Linked to LAN Accessing LAN No LAN link
RJ45 NIC1 Mode (Right Side)	Yellow Green OFF	ON ON OFF	Gigabit mode 100M mode 10M mode
RJ45 NIC2 Linkage (Left Side)	Green Green OFF	ON Blinking OFF	Linked to LAN Accessing LAN No LAN link
RJ45 NIC2 Mode (Right Side)	Yellow Green OFF	ON ON OFF	Gigabit mode 100M mode 10M mode
RJ45 for SMDC Linkage (Left Side)	Green OFF	Blinking OFF	Accessing SMDC No SMDC link
RJ45 for SMDC Mode (Right Side)	Green OFF	ON OFF	Linked to SMDC No SMDC link
ID LED	Blue OFF	ON OFF	System identified System not identified

NOTE：”Right” or ”Left” is viewed from the rear.

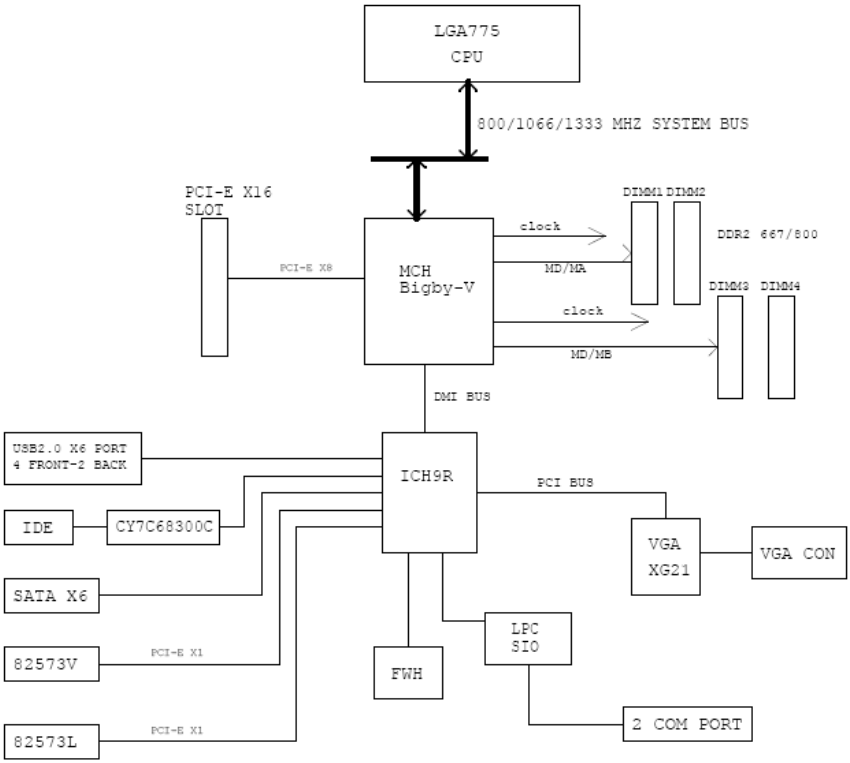
1.6.4 Motherboard Layout



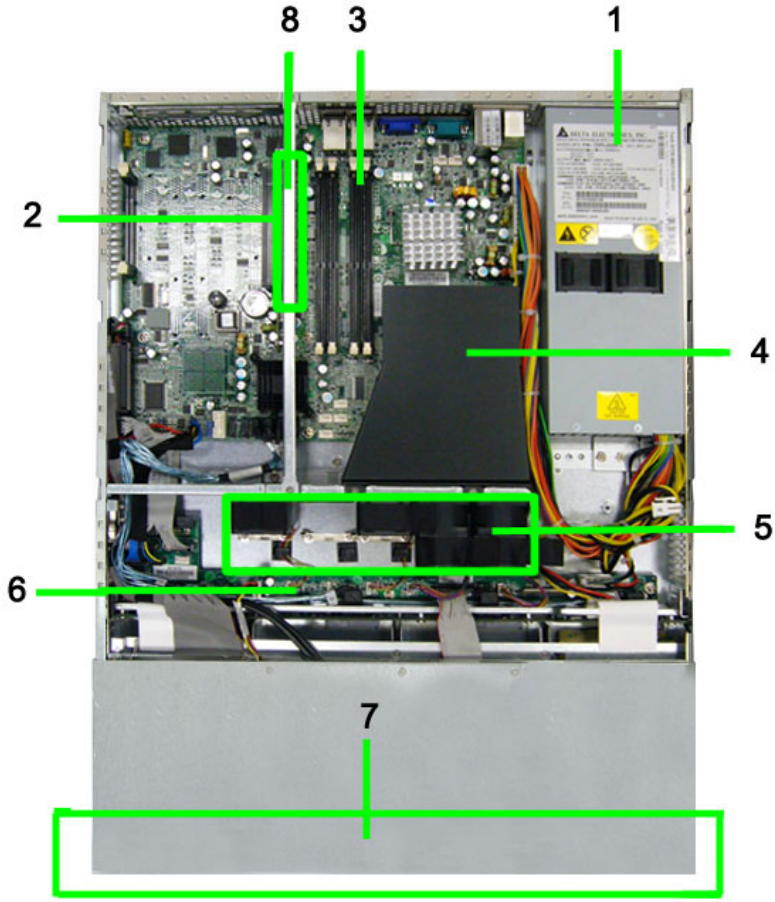
1.6.5 Jumpers & Connectors

Jumper/Connector	Function
COM2 (J19)	COM2 Header
FAN1/2/3/4/5/6	4-pin Fan Connector
USB1 (JP7) / USB2 (JP2)	USB Front Panel Connector
TYFP1 (JP9)	18-pin Front Panel Connector
TYFP2 (J22)	12-pin Front Panel Connector (reserved for OEM only)
J23	LCM Connector (reserved for OEM only)
IPMB (J4)	IPMB Connector
J11	IPMI Connector
J10	Riser Power Connector
J24	Barebone Fan Connector (reserved for OEM only)
JP4	PCI-X Speed Select Jumper
CMOS (JP3)	Clear CMOS Jumper

1.6.6 System Block Diagram



1.6.7 Internal View



1. Power Supply
2. PCI-E slot
3. Memory Slots
4. CPU Sockets
   (under the Air Duct)
5. System Fans
6. M1210
7. Four SATA/SAS HDD Bays
8. M2083

Chapter 2: Setting Up

2.0.1 Before you Begin

This chapter explains how to install the CPU, CPU heatsink, memory modules, and hard drives. Instructions on inserting a PCI-E card are also given.

Take note of the precautions mentioned in this section when installing your system.

2.0.2 Work Area

Make sure you have a stable, clean working environment. Dust and dirt can get into components and cause malfunctions. Use containers to keep small components separated. Putting all small components in separate containers prevents them from becoming lost. Adequate lighting and proper tools can prevent you from accidentally damaging the internal components.

2.0.3 Tools

The following procedures require only a few tools, including the following:

- A cross head (Phillips) screwdriver
- A grounding strap or an anti-static pad

Most of the electrical and mechanical connections can be disconnected using your fingers. It is recommended that you do not use needle-nosed pliers to remove connectors as these can damage the soft metal or plastic parts of the connectors.

2.0.4 Precautions

Components and electronic circuit boards can be damaged by discharges of static electricity. Working on a system that is connected to a power supply can be extremely dangerous. Follow the guidelines below to avoid damage to the Tank GT20 B5211 or injury to yourself.

- Ground yourself properly before removing the top cover of the system. Unplug the power from the power supply and then touch a safely grounded object to release static charge (i.e. power supply case). If available, wear a grounded wrist strap. Alternatively, discharge any static electricity by touching the bare metal chassis of the unit case, or the bare metal body of any other grounded appliance.

- Avoid touching motherboard components, IC chips, connectors, memory modules, and leads.

- The motherboard is pre-installed in the system. When removing the motherboard, always place it on a grounded anti-static surface until you are ready to reinstall it.

- Hold electronic circuit boards by the edges only. Do not touch the components on the board unless it is necessary to do so. Do not flex or stress circuit boards.

- Leave all components inside the static-proof packaging that they ship with until they are ready for installation.

- After replacing optional devices, make sure all screws, springs, or other small parts are in place and are not left loose inside the case. Metallic parts or metal flakes can cause electrical shorts.

Notes:
- All connectors are keyed to only attach one way.
- Always use the correct screw size as indicated in the procedures.

2.1 Installing Motherboard Components

This section describes how to install components on to the motherboard, including CPU, memory modules, and Epansion card.

2.1.1 Removing the Chassis Cover

Follow these instructions to remove the Tank GT20 chassis cover.

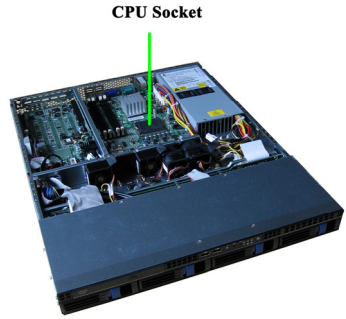
1. Remove the screw on the back side as shown in the small diagram. Then slide the chassis cover in the direction of arrow.

2. Remove the cover.

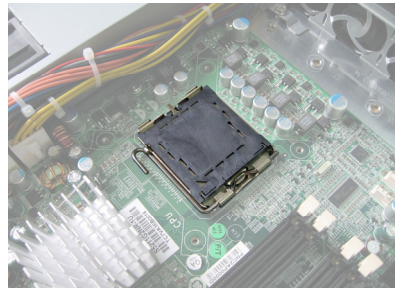
2.1.2 Installing the CPU, Heatsink, and Air Duct

Follow these instructions on install CPU, CPU heatsink，and the air duck.

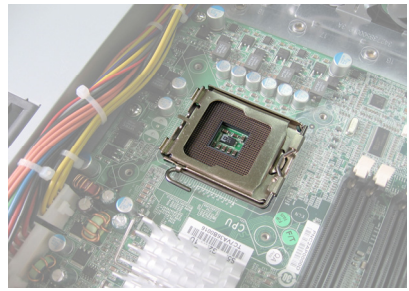
1. Release the pre-installed air duct. Locate the CPU socket.



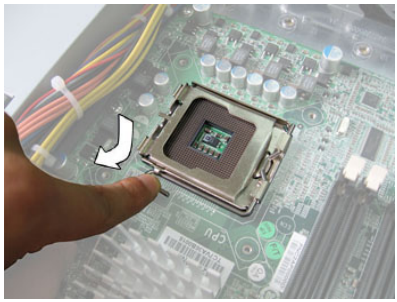
2. Remove the cover on the CPU socket cap.



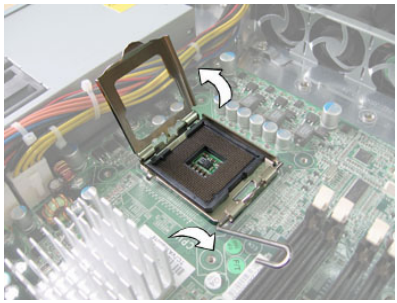
3. Locate the lever of CPU socket.



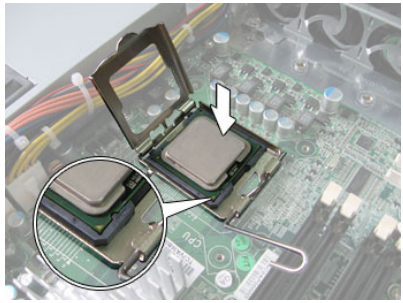
4. Press and pull the lever in the direction as illustrated.



5. Open the socket in the direction as illustrated.



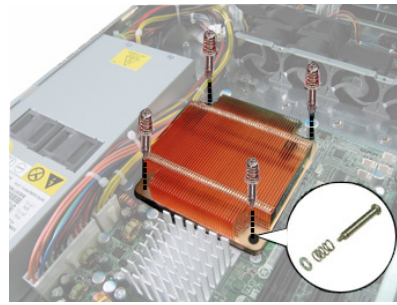
6. Place CPU on the socket, ensuring that the edge with triangle mark aims at the edge of socket with triangle mark.



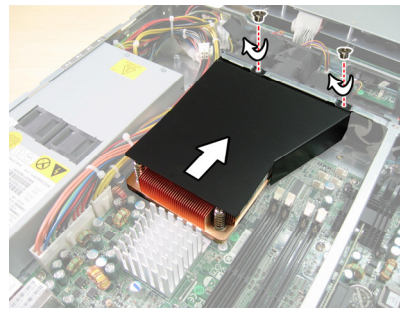
7. Close the cover and secure the CPU socket in the direction shown.

8. Secure the heatsink with 4 screws.

NOTE: Remember to install the washer and nut while installing the screws.



9. Secure the air duct with 2 screws.

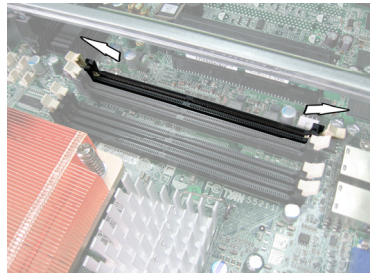


2.1.3 Installing the Memory

Follow these instructions to install the memory modules on the motherboard.

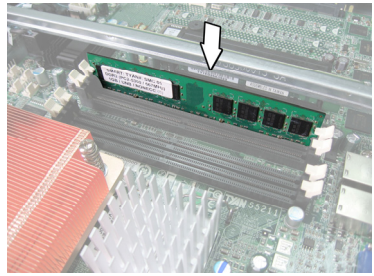
1. Locate the memory slots on the motherboard.

2. Press the memory slot locking levers in the direction of the arrows as shown in the following illustration.



3. Align the memory module with the slot. The module has indentations that align with notches in the slots.

4. Insert the memory module into the slot as shown.

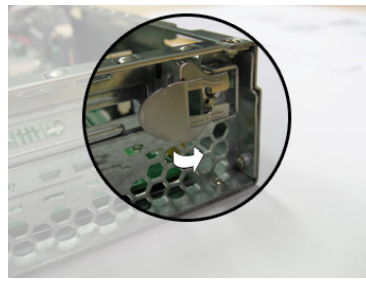


When inserted properly, the memory slot locking levers lock automatically onto the indentations at the ends of the module.

2.1.4 Installing the Expansion Card

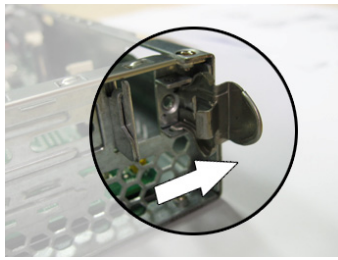
Follow these instructions to install a expansion card.

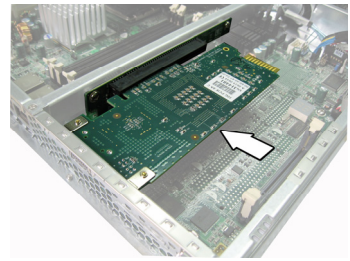
1. Push the tab of PCI-E slot on the rear panel in the direction as shown to release the bracket.



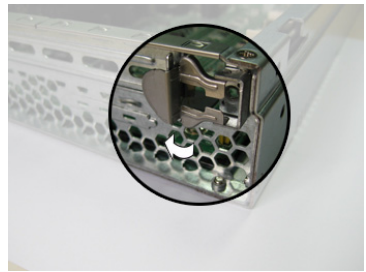
2. Move the bracket to right as shown and then take off the bracket (A).
3. Insert the expansion card in the directions of arrow (B).

A B





4. Push the tab of PCI-E slot on the rear panel in the direction as shown to fix expansion card.



2.1.5 Installing the Hard Drive

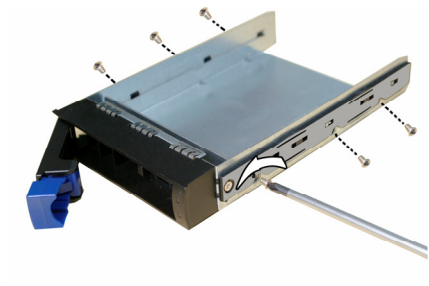
The Tank GT20 barebone system supports Serial ATA hard drives. Follow these instructions to install a SATA hard drive.

1. Press the locking lever latch in the direction of arrow (A) and then pull the locking lever open (B).

A B

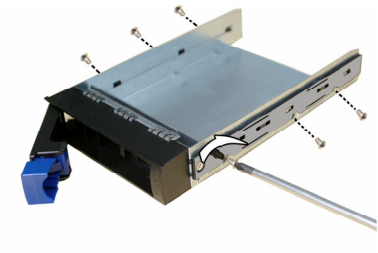
2. Slide the drive tray out.

3. Remove the 6 screws.



4. Place a hard drive into the drive tray.

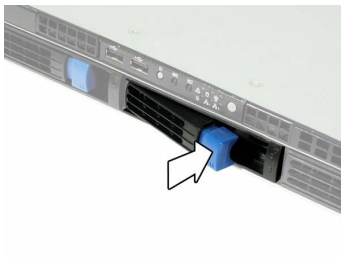
5. Use 6 HDD screws to secure the HDD.



6. Reinsert the drive tray into the chassis (A), ensuring that the drive tray is completely inserted into the chassis (B).

A B

7. Press the locking lever to secure the hard drive tray.



2.2 Rack Mounting

After installing the necessary components, the Tank GT20 can be mounted in a rack using the supplied rack mounting kit.

Rack mounting kit

Sliding Rails x 2

Sliding Bracket x 4 (Front x 2, Rear x 2)

Mounting Ears(including screws) x 2

Screws Kit x 1

Mounting Brackets x 4

2.2.1 Installing the Server in a Rack

Follow these instructions to mount the Tank GT20 into an industry standard 19" rack.

NOTE: Before mounting the Tank GT20 in a rack, ensure that all internal components have been installed and that the unit has been fully tested.

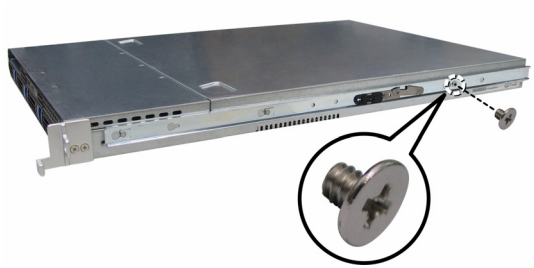
Screws List

No.	Screw	Size	Quantity
A		M4-4L	18
B		M5-8L	10
C		M5-15L	4

2.2.1.1 Installing the inner Rails to the Chassis

1. Screw the mounting ear to each side of Tank GT20 as shown using 2 screws from the supplied screws kit.

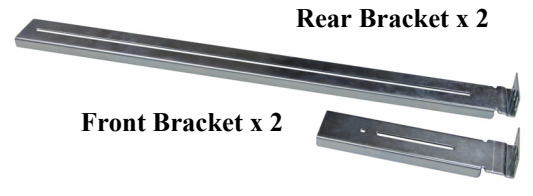
2. Draw out the inner rails from rail assembly. Install inner rails to left and right sides of chassis using 1 M4-4L (A) screw for each side.



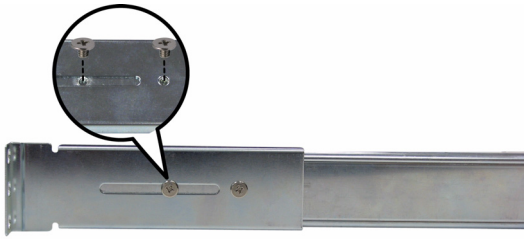
2.2.1.2 Installing the Outer Rails to the Rack

1. Measure the distance between inner side of the front and rear mounting brackets in the rack.

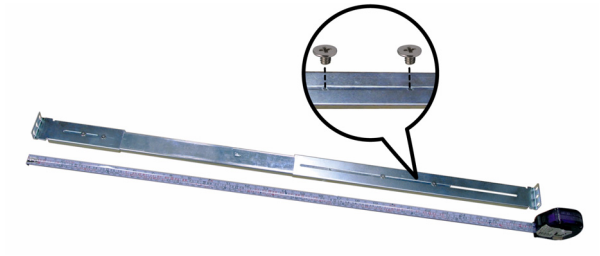
2. Locate the front and rear brackets.



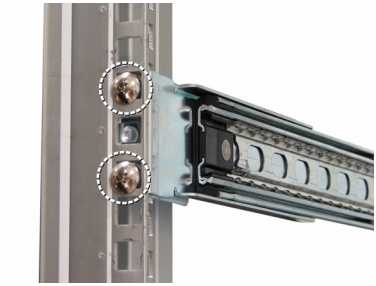
3. Secure the front bracket to outer rail with 2 M4-4L(A) screws.



4. Reserve the distance same as in Step 1 on rear bracket. Secure the rear bracket to outer rail with 2 M4-4L (A) screws.



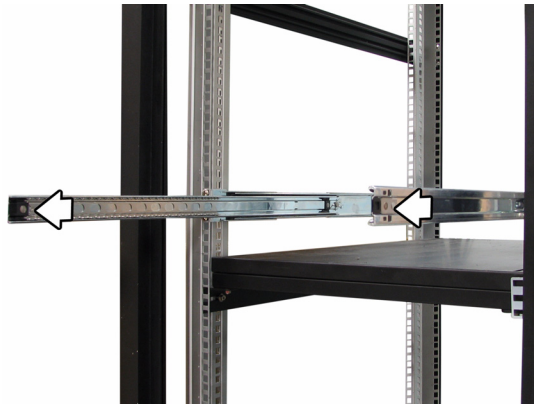
5. Secure the outer rail to the rack using 2 brackets and 4 M5-8L (B) screws for each side. Secure the mounting brackets from inside, not outside, of the rack.



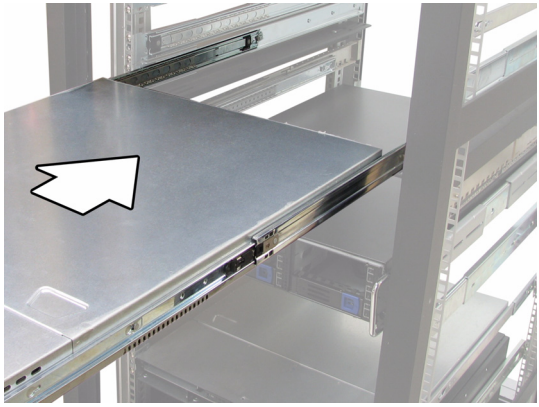
Mounting Bracket

2.2.2 Rack Mount Instructions

1. Draw out the middle rail to the latch position.

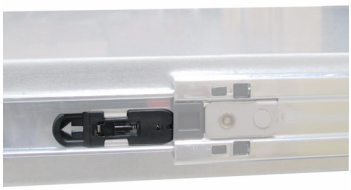


2. Lift the chassis and then insert the inner slide rails into the middle rails.

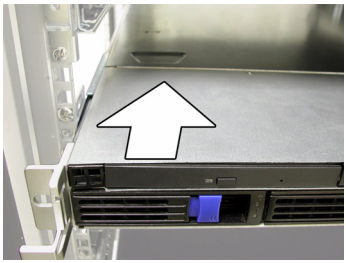


3. Push the chassis in and press the latch key (A). Then push the whole system into the rack (B).

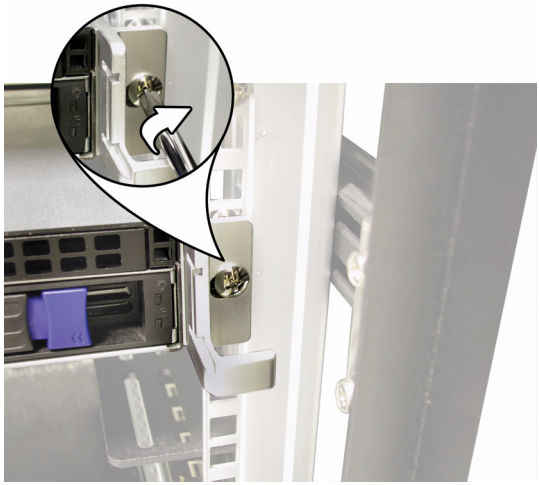
A



B



4. Secure the mounting ears of chassis to the rack with 2 M5-15L (C) screws.



NOTE: To avoid injury, it is strongly recommended that two people lift the Tank GT20 into the place while a third person screws it to the rack.

Chapter 3: Replacing Pre-Installed Components

3.1 Introduction

This chapter explains how to replace pre installed components including the motherboard, LED control board, HDD, and DVD-ROM drive. Take note of the precautions in this section when installing your system.

3.1.1 Work Area

Make sure you have a stable, clean working environment. Dust and dirt can get into components and cause malfunctions. Use containers to keep small components separated. Putting all small components in separate containers prevents them from becoming lost. Adequate lighting and proper tools can prevent you from accidentally damaging the internal components.

3.1.2 Tools

The following procedures require only a few tools, including the following:

- A cross head (Phillips) screwdriver
- A grounding strap or an anti-static pad

Most of the electrical and mechanical connections can be disconnected using your fingers. It is recommended that you do not use needle-nosed pliers to remove connectors as these can damage the soft metal or plastic parts of the connectors.

3.1.3 Precautions

Components and electronic circuit boards can be damaged by discharges of static electricity. Working on a system that is connected to a power supply can be extremely dangerous. Follow the guidelines below to avoid damage to the Tank GT20 or injury to yourself.

- Ground yourself properly before removing the top cover of the system. Unplug the power from the power supply and then touch a safely grounded object to release static charge (i.e. power supply case). If available, wear a grounded wrist strap. Alternatively, discharge any static electricity by touching the bare metal chassis of the unit case, or the bare metal body of any other grounded appliance.

- Avoid touching motherboard components, IC chips, connectors, memory modules, and leads.

- The motherboard is pre-installed in the system. When removing the motherboard, always place it on a grounded anti-static surface until you are ready to reinstall it.

- Hold electronic circuit boards by the edges only. Do not touch the components on the board unless it is necessary to do so. Do not flex or stress circuit boards.

- Leave all components inside the static-proof packaging that they ship with until they are ready for installation.

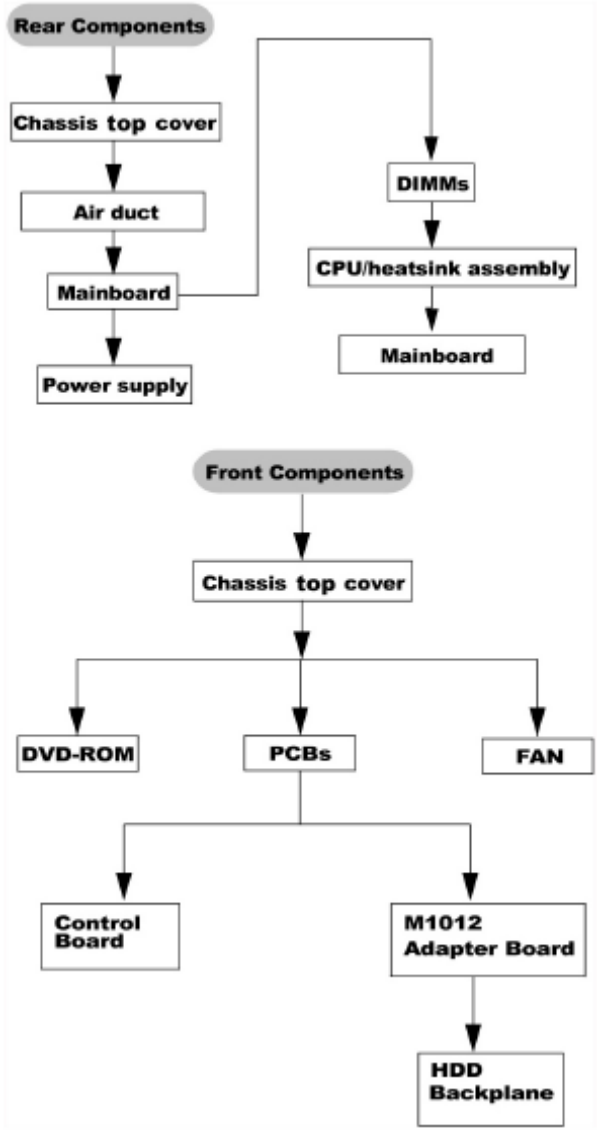
- After replacing optional devices, make sure all screws, springs, or other small parts are in place and are not left loose inside the case. Metallic parts or metal flakes can cause electrical shorts.

Notes:

- All connectors are keyed to only attach one way.
- Always use the correct screw size as indicated in the procedures.

3.2 Disassembly Flowchart

The following flowchart outlines the disassembly procedure.



3.3 Removing the Cover

Before replacing any parts you must remove the chassis cover.

Follow these instructions to remove the cover of the Tank GT20 chassis cover.

1. Remove the screw on the back side as shown in the small diagram. Then slide the chassis cover in the direction of arrow.

2. Remove the cover.

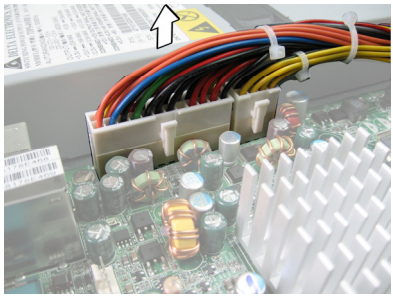
3.4 Replacing Motherboard Components

Follow these instructions to replace motherboard components, including the motherboard.

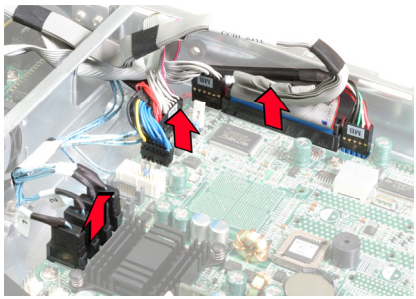
3.4.1 Disconnecting All Motherboard Cables

Before replacing the motherboard or certain components, remove cables connected to the motherboard. Follow these instructions to remove all motherboard cabling.

1. Disconnect all power cables.



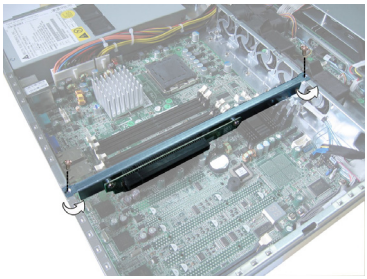
2. Disconnect the cable.



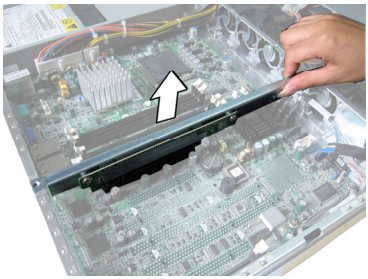
3.4.2 Removing the Motherboard

Follow these instructions to remove the motherboard from the chassis when all add-on components have been removed.

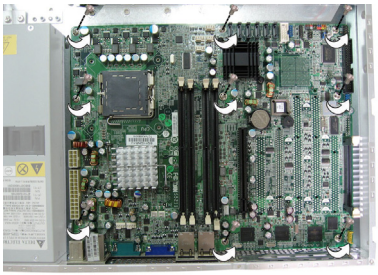
1. Release the two screws securing the link bar.



2. Remove the link bar.



3. Remove the nine screws securing the motherboard to the chassis.

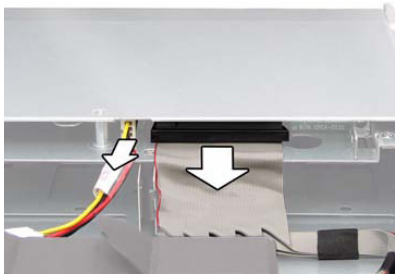


4. Remove the motherboard.

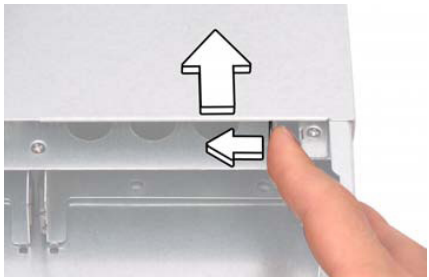
3.5 Replacing the Slim DVD-ROM

Follow these instructions to replace the DVD-ROM.

1. Remove power and data cables from the slim DVD-ROM adapter.



2. Press the tab in the directions as shown to release the DVD-ROM drive.



3. Free the DVD-ROM drive from the drive bay after pressing the tab.

4. Remove the two screws that secure DVD-ROM drive to the bracket.

5. Replace the DVD-ROM drive.

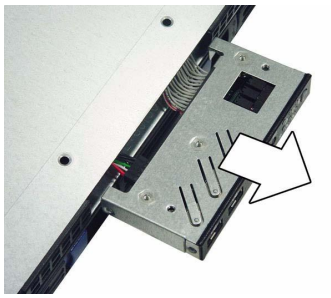
6. Secure DVD-ROM to the bracket using two screws. Then replace the unit into the drive bay and connect the DVD-ROM power and data cables as in step1.

3.6 Replacing the LED Control Board

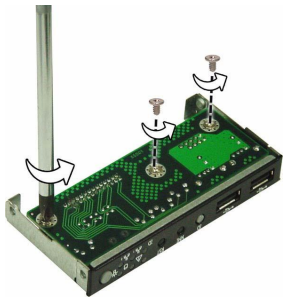
Follow these instructions to replace the LED control board.

1. Remove the two screws securing the LED control board unit to the chassis.

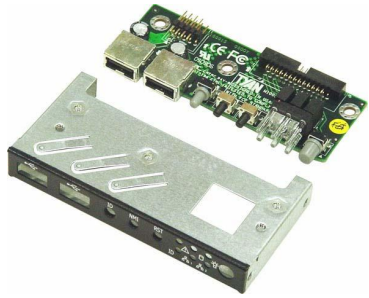
2. Pull the LED control board free from the chassis and unplug the ribbon and USB cables from the connector.



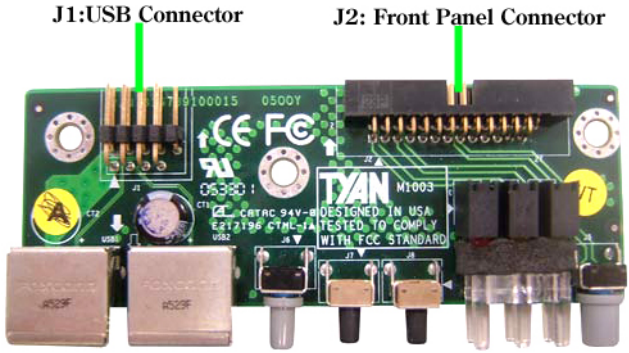
3. Remove three screws securing LED control board to the bracket.



4. Lift the LED control board free from the chassis. After replacement, insert and secure the unit to the chassis following the reverse procedures from step 1~3.



3.6.1 M1003 LED Control Board Features



3.6.2 M1003 LED Control Board Connector Pin Definition

J1 USB Connector

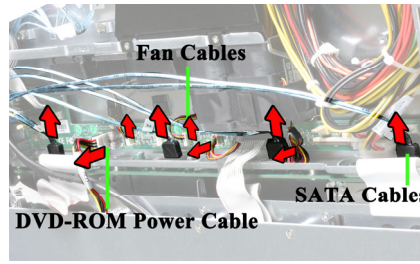
Pin	Definition	Pin	Definition
1	VCC5	2	VCC5
3	USB1-	4	USB0-
5	USB1+	6	USB0+
7	GND	8	GND
9	KEY PIN	10	GND

J2 Front Panel Connector

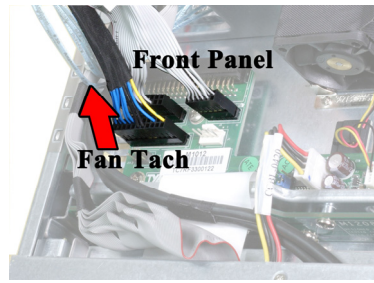
Pin	Definition	Pin	Definition
1	HDLED+	2	HDLED-
3	RESET+	4	RESET-
5	PW_LED+	6	PW_LED-
7	WLED+	8	WLED-
9	OCJ_SMBDAT	10	ICH_SMBCLK
11	EXT_INT	12	VOLTAGE5
13	V5SB	14	INTRU#
15	PWR_SW+	16	PWR_SW-
17	LAN1_LED+	18	LAN1_LED-
19	LAN2_LED+	20	LAN2_LED-
21	LAN3_LED+	22	LAN3_LED-
23	ID_LED+	24	ID_LED-
25	ID_SW+	26	ID_SW+
27	KEY PIN	28	NC

3.7 Replacing the M1012 Adapter Board

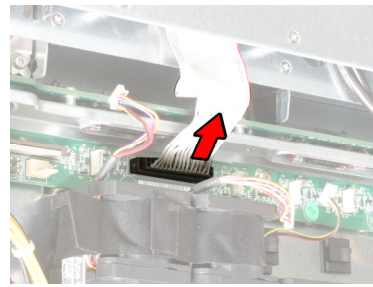
1. Before replacing M1012 adapter board, you must disconnect the four SATA cables connected to the SATA backplane. After that, disconnect all the cables connected to the M1012 adapter board.



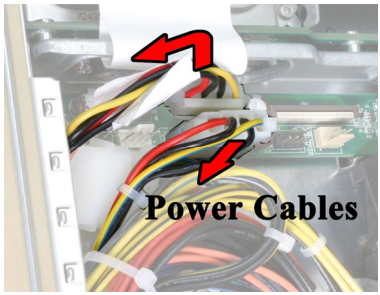
2. Remove the Front Panel, LAN/ID LED and Fan Tach cables.



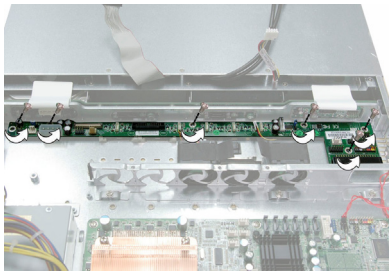
3. Remove the Front Panel Control Board cable.



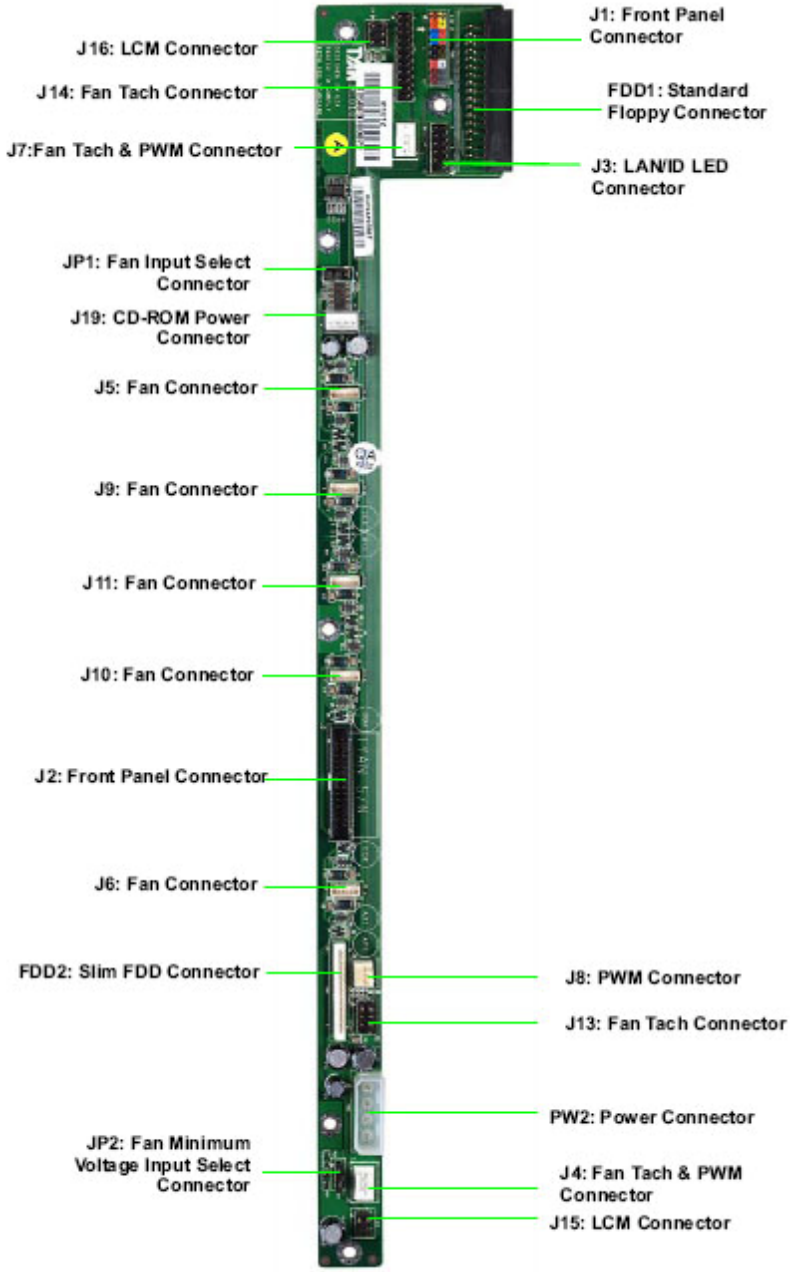
4. Remove one power cable connected to M1012 adapter board and two power cables connected to SATA back-plane.



5. Remove the 6 screws securing the M1012 adapter board. After that, you can release the M1012 adapter board from the chassis.



3.7.1 M1012 Adapter Board Features



3.7.2 M1012 Adapter Board Connector Pin Definitions

J1 TYFP Front Panel Connector

Pin	Definition	Pin	Definition
1	HDLED+	2	PW_LED+
3	HDLED -	4	PW_LED -
5	RESET -	6	PWR_SW+
7	RESET+	8	PWR_SW -
9	VOLTAGE5	10	WLED+
11	EXT_INT	12	WLED -
13	V5SB	14	KEY PIN
15	ICH SMBDAT	16	GND
17	ICH_SMBCLK	18	INTRU#

J2 TYFP Front Panel Connector

Pin	Definition	Pin	Definition
1	HDLED+	2	HDLED -
3	RESET+	4	RESET -
5	PW_LED +	6	PW_LED -
7	WLED+	8	WLED -
9	ICH SMBDAT	10	ICH SMBCLK
11	EXT_INT	12	VOLTAGE5
13	V5SB	14	INTRU#
15	PWR SW +	16	PWR SW -
17	LAN1_LED +	18	LAN1_LED -
19	LAN2_LED +	20	LAN1_LED -
21	LAN3_LED +	22	LAN1_LED -
23	ID LED+	24	ID LED -
25	ID SW +	26	ID SW -
27	KEY PIN	28	NC

J3 LAN/ID LED Connector

Pin	Definition	Pin	Definition
1	LAN1_LED+	2	LAN1_LED-
3	LAN2_LED+	4	LAN2_LED-
5	LAN3_LED+	6	LAN3_LED-
7	ID LED+	8	ID LED-
9	ID SW+	10	ID SW-
11	KEY PIN	12	PWM

FAN Signal Related Connector Pin Definitions

NOTE: The FAN signal naming is based on HW circuit design only. It might be different from the system fan naming.

J4 Fan TACH & PWM Connector

Pin	Definition
1	GND
2	NC
3	FAN1_TACH
4	PWM1(Default)

J7 Fan TACH & PWM Connector

Pin	Definition
1	GND
2	NC
3	FAN7_TACH
4	PWM1(Default)

J8 PWM Connector

Pin	Definition
1	GND
2	PWM2
3	FAN1_TACH

J13 Fan TACH Connector

Pin	Definition	Pin	Definition
1	GND	2	FAN1_TACH
3	GND	4	FAN2_TACH
5	GND	6	FAN3_TACH
7	KEY PIN	8	NC

J14 Fan TACH Connector

Pin	Definition	Pin	Definition
1	GND	2	FAN1_TACH
3	GND	4	FAN2_TACH
5	GND	6	FAN3_TACH
7	GND	8	FAN4_TACH
9	GND	10	FAN5_TACH
11	GND	12	FAN6_TACH
13	GND	14	FAN7_TACH
15	GND	16	FAN8_TACH
17	GND	18	FAN9_TACH
19	GND	20	FAN10_TACH
21	KEY PIN	22	NC

J6 Fan Connector

Pin	Definition
1	FAN1 12VPWM
2	FAN1_TACH
3	GND
4	GND
5	FAN2_TACH
6	FAN2 12VPWM

J10 Fan Connector

Pin	Definition
1	FAN3 12VPWM
2	FAN3_TACH
3	GND
4	GND
5	FAN4_TACH
6	FAN4 12VPWM

J11 Fan Connector

Pin	Definition
1	FAN5 12VPWM
2	FAN5_TACH
3	GND
4	GND
5	FAN6_TACH
6	FAN6 12VPWM

J9 Fan Connector

Pin	Definition
1	FAN7 12VPWM
2	FAN7_TACH
3	GND
4	GND
5	FAN8_TACH
6	FAN8 12VPWM

J5 Fan Connector

Pin	Definition
1	FAN9 12VPWM
2	FAN9_TACH
3	GND
4	GND
5	FAN10_TACH
6	FAN10 12VPWM

J15 & J16 LCM Connectors

Pin	Definition	Pin	Definition
1	LCM +5V	2	LCM_SIN
3	KEY PIN	4	GND
5	LCM +5VSB	6	LCM_SOUT

JP1 Fan Input Select Connector

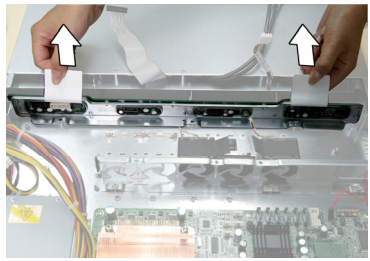
Pin	Definition
Pin1 & Pin2 Close	Fan PWM signal from J8
Pin2 & Pin3 Close	Fan PWM signal from J4,J7 & J14 (Default)

JP2 Fan Input Select Connector

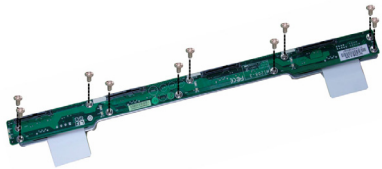
Pin	Definition
Pin1 & Pin2 Close	0V
Pin2 & Pin3 Close	+5V (Default)

3.8 Replacing the SATA Backplane (M1208-3-SN)

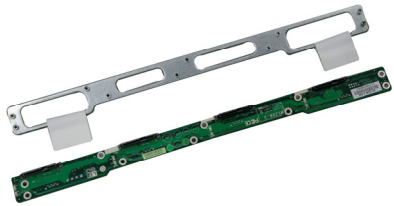
1. After removing the M1012 adapter board, you can easily grab the two lables to lift the SATA backplane.



2. Remove the ten screws that secure the bracket to the backplane.

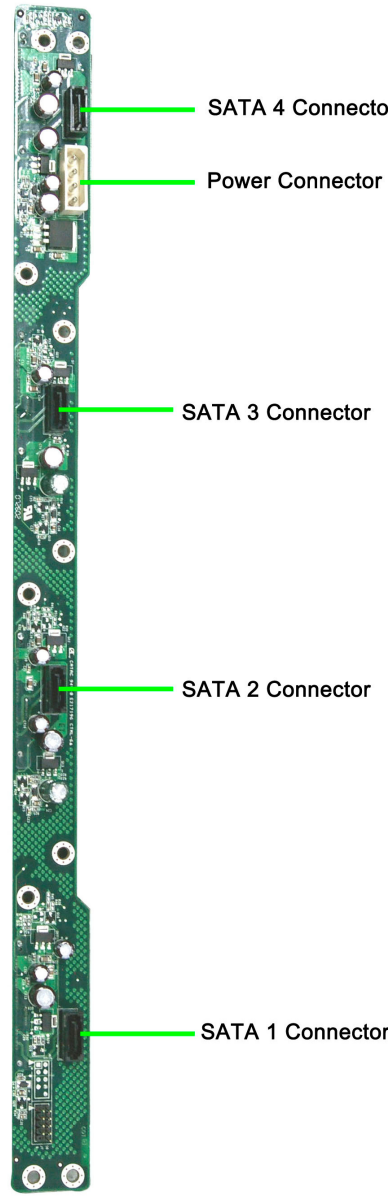


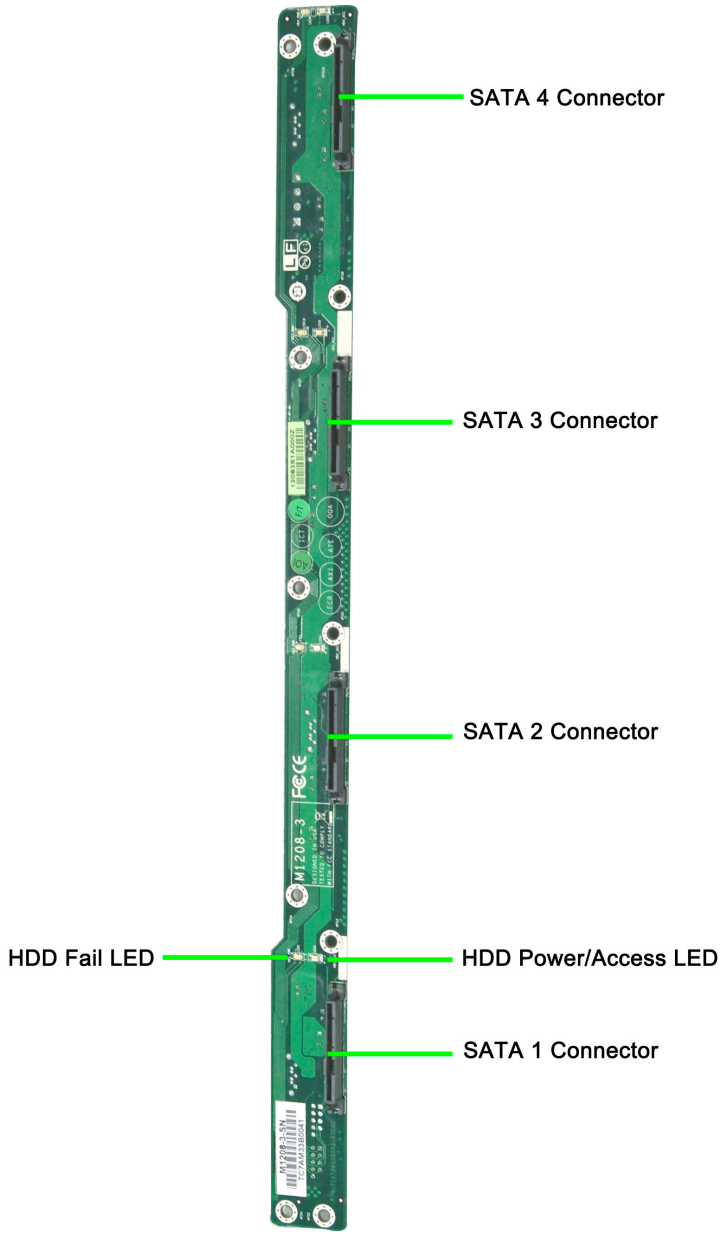
3. Release the backplane free from the bracket.



4. Replace the unit to the chassis following the reverse procedures from step 1 to 3 after done.

3.8.1 SATA Backplane (M1208-3-SN) Features

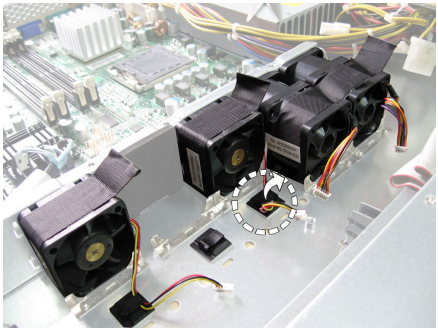



SATA 4 Connector
SATA 3 Connector
SATA 2 Connector
HDD Fail LED
HDD Power/Access LED
SATA 1 Connector

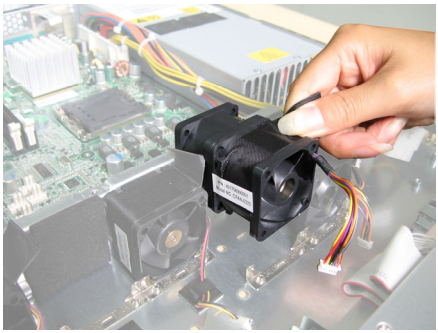
3.9 Replacing the System FAN

Follow these instructions to replace the cooling fans in your system.

1. Locate the fan connector on the motherboard and unplug the fan cable.



2. Take the fan away from the chassis.



3. Replace the fan into the chassis following the reverse procedures from 1 to 2 after done.

3.10 Replacing the Power Supply

1. Remove the two screws that secure the power supply to the chassis.

2. Remove the screw that secure the fan assembly to the chassis

Appendix I: BIOS Differences

The BIOS of B5211 is similar to S5211 while there are some menus different. The following table displays the differences in BIOS between B5211 and S5211. For a complete review of S5211 BIOS, refer to the motherboard manual.

S5211 Advanced Hardware Health Information

Phoenix BIOS Setup Utility				
Main	**Advanced**	Power	Boot	Exit
Hardware Monitor			Item Specific Help	
▶Voltage Monitoring Fan1 Fan2 Fan3 Fan4 Fan5 Fan6 CPU0 Temp. Ambient Temp. FAN Fail LED Indicator Auto Fan Control PWM Duty Cycle				
F1 Help ↑ ↓ Select Item -/+ Change Values F9 Setup Defaults Esc Exit ←→ Select Menu Enter Select ▶ Sub-Menu F10 Previous Values				

B5211 Advanced Hardware Health Information

Phoenix BIOS Setup Utility				
Main	**Advanced**	Power	Boot	Exit
Hardware Monitor			Item Specific Help	
▶Voltage Monitoring System Fan1 System Fan2 System Fan3 System Fan4 System Fan5 System Fan6 CPU Temp. = Ambient1 Temp = Ambient2 Temp = Ambient3 Temp = FAN Fail LED Indicator [Enabled] Auto Fan Control [Enabled]				
F1 Help ↑ ↓ Select Item -/+ Change Values F9 Setup Defaults Esc Exit ←→ Select Menu Enter Select ▶ Sub-Menu F10 Previous Values				

Table of Differences

	S5211	**B5211**
Auto Fan Control	Disabled	Enabled
Hardware Monitor Fan	Fan1 Fan2 Fan3 Fan4 Fan5 Fan6	System Fan1 System Fan2 System Fan3 System Fan4 System Fan5 System Fan6

Appendix II: Cable Connection Tables

SATA Cables

Table 1: B5211

HDD	Connect to	Motherboard
HDD 1	→	SATA 1
HDD 2	→	SATA 2
HDD 3	→	SATA 3
HDD 4	→	SATA 4

FAN Cables

Table 2: System Fan to M1012 Adapter Board

HDD	Connect to	Motherboard
Fan 1	→	J6 Fan Connector
Fan 2	→	J10 Fan Connector
Fan 3	→	J11 Fan Connector
Fan 4	→	J5 Fan Connector
Fan 5	→	J6 Fan Connector
Fan 6	→	J10 Fan Connector

Table 3: M1012 Adapter Board to Motherboard

M1012	Connect to	Motherboard
P14 Fan connector	→	J24 Fan connector

Power Supply Cables

Table 3: Power Supply to Motherboard

Power Supply	Connect to	Motherboard
P1 24-pin power supply	→	PW1 24-pin connector
P2 8-pin power supply	→	PW2 8-pin connector
P5 4-pin power supply	→	M1208-3-SN SATA backplane 4-pin connector
P4 4-pin power supply	→	M1012 adapter board 4-pin connector

Other Cables

Table 4: M1012 Adapter Board to Motherboard

M1012	Connect to	Motherboard
J1 TYFPI Front Panel Connector	→	JP9 18-pin Front Panel Connector
J3 TYFPII Front Panel Connector	→	J22 12-pin Front Panel Connector

Table 5: M1003 Front Panel LED Board Related Cable

M1003	Connect to	M1012 adapter board
M1003 J2 Connector	→	J2 Connector

Table 5: DVD-ROM Related Cables

M1012	Connect to	DVD-ROM
M1012 J19 Connector	→	DVD-ROM Backplane

Appendix III: Installing the SMDC Card

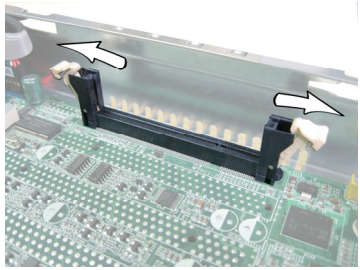
The following illustrations provide you with the information on installing SMDC card. You may refer to the following for installing M3295-2 or M3296 on the Motherboard.

1. Two kinds of SMDC Cards (M3295-2 / M3296)

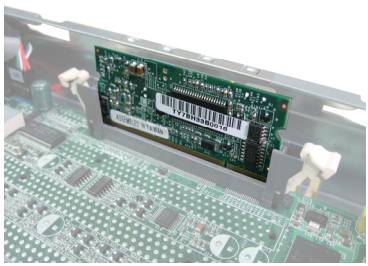
M3295-2

M3296

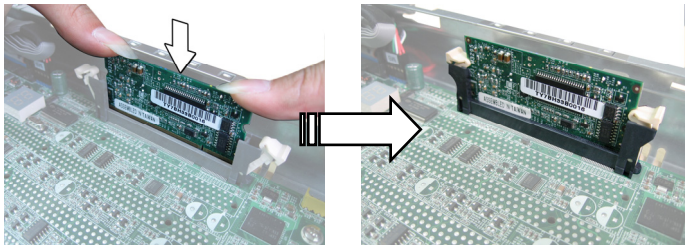
2. Press the slot locking levers in the direction of the arrows as shown in the following illustration.



3. Put the SMDC Card into the slot as shown.

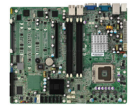


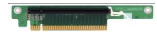
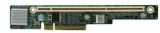
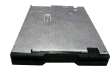
4. Press the SMDC card until the slot locking levers lock automatically onto the indentations at the ends of the module.



Appendix IV: FRU Parts Table

GT20-B5211 FRU Parts

Item	Model Number	Part Number	Picture	Quantity	Description
Motherboard	S5211G2NR-1U	-		1	S5211G2NR-1U Single Kentsfield/Yorkfield/Conroe/Wolfdale Motherboard
Chassis Unit	CCHA-0082	432772300001		1	GT20 1U Chassis for B5211
Chassis Top Cover	CCCV-0140	340772300001		1	GT20 Top Cover
Chassis Front Bezel	CFBZ-0070	541273910008		1	Front Bezel for GT20 Series 1U Chassis
HDD Tray	CHDT-0051	340746300001		4	Removable 3.5"HDD Tray
Power Supply	CPSU-0280	471015200187		1	400W Single Power Supply
FAN	CFAN-0320	541277230002		2	40X40X56mm Fan, 15800rpm, 6-pin
	CFAN-0171	541274620001		2	40X40X28mm Fan, 15000rpm, 3-pin
Heat Sink & Cooler	CHSK-0131	343740000002		1	CPU Heat Sink
Air Duct	CADT-0240	343772300001		1	Air Duct

Item	Model Number	Part Number	Picture	Quantity	Description
PCBA	M1003-ID-RS	541174620001		1	Front Control Board
	M1012-RS	-		1	Fan Adaptor Board
	M1208-3-SN	-		1	SAS/SATA 4-Port Backplane
	M2083-RS	-		1	PCI-E X16 1U Riser Card
	M2061	-		1	TF-PCI-E to PCI-X 1U Riser Card
	M3295-2			1	SMDC IPMI Card M2 level
	M3296	-		1	SMDC IPMI Card M3 level
CPU Backplane	CHSB-0031	341740000003		1	CPU Heat Sink Backplane
LCD Module	CLCM-0040	541373910001		1	LCD Module Kit for GT Series 1U Chassis
Peripheral Drives & Parts	CDVD-0020	523410299027		1	Slim Type DVD-ROM, Sliver Color
	CPCA-0230	412740000001		1	DVD-ROM Adapter Board with Screw

Item	Model Number	Part Number	Picture	Quantity	Description
Rack Mounting Parts	CRAL-0032	340738500004		1	Slide Rail Kit
	CEAR-0050	340740900010		1	Mounting Ear Kit
Cable Set	CCBL-040A	422758300001		1	TYFP Cable,180mm
	CCBL-0679	422753600007		1	SAS Cable, 220/370/490/620mm
	CCBL-0354	422759200004		1	USB Cable, 480mm
	CCBL-0721	422750900007		1	Control Cable, 320mm
	CCBL-0433	422740900009		1	CD-ROM Flat Cable, 395mm
	CCBL-0420	422740000022		1	CD-ROM Power Cable, 80mm
	CCBL-039E	422772300001		1	Fan Cable,150mm
	CCBL-046M	422758800002		1	PSU Cable Male 90 Degree B4P to B4P Female 180 Degree, L=80mm
	CCBL-0310	332810000280		1	A/C Power Cord, US Type, 2440mm
	CCBL-0300	332810000281		1	A/C Power Cord, EU Type, 1800mm
	CCBL-0600	422739100028		2	LCD Module Cable, 300mm

(Note: The table is subject to change without notice. Please visit our Web site at http://www.tyan.com for latest update.)

Technical Support

If a problem arises with your system, you should first turn to your dealer for direct support. Your system has most likely been configured or designed by them and they should have the best idea of what hardware and software your system contains. Hence, they should be of the most assistance for you. Furthermore, if you purchased your system from a dealer near you, take the system to them directly to have it serviced instead of attempting to do so yourself (which can have expensive consequence).

If these options are not available for you then TYAN Computer Corporation can help. Besides designing innovative and quality products for over a decade, TYAN has continuously offered customers service beyond their expectations. TYAN's website (**www.tyan.com**) provides easy-to-access resources such as in-depth Linux Online Support sections with downloadable Linux drivers and comprehensive compatibility reports for chassis, memory and much more. With all these convenient resources just a few keystrokes away, users can easily find their latest software and operating system components to keep their systems running as powerful and productive as possible. TYAN also ranks high for its commitment to fast and friendly customer support through email. By offering plenty of options for users, TYAN serves multiple market segments with the industry's most competitive services to support them.

"TYAN's tech support is some of the most impressive we've seen, with great response time and exceptional organization in general."
— Anandtech.com

Please feel free to contact us directly for this service at **tech-support@tyan.com**

Help Resources:

1. See the beep codes section of this manual.

2. See the TYAN website for FAQ's, bulletins, driver updates, and other information: http://www.tyan.com

3. Contact your dealer for help BEFORE calling TYAN.

4. Check the TYAN user group: alt.comp.periphs.mainboard. TYAN

Returning Merchandise for Service
During the warranty period, contact your distributor or system vendor FIRST for any product problems. This warranty only covers normal customer use and does not cover damages incurred during shipping or failure due to the alteration, misuse, abuse, or improper maintenance of products.

NOTE: A receipt or copy of your invoice marked with the date of purchase is required before any warranty service can be rendered. You may obtain service by calling the manufacturer for a Return Merchandise Authorization (RMA) number. The RMA number should be prominently displayed on the outside of the shipping carton and the package should be mailed prepaid.
TYAN will pay to have the board shipped back to you.

TYAN Tank GT20-B5211 User's Manual v1.01

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